

WHAT IS CLAIMED IS:

1. A method of monitoring a packet-switched network using traffic logs, comprising the steps of:

(a) creating a histogram file;

5 (b) storing a traffic log generated by the network;

(c) determining the time of creation of the traffic log and its network entry and exit

points; and

(d) updating the histogram file using at least the time of creation of the traffic log and at

least one of the entry and exit points.

2. The method of claim 1, wherein the histogram file is a flat file, whereby direct and rapid access to stored data is effected .

15 3. The method of claim 1, wherein two histogram files are created, a first histogram being representative of traffic being passed into the network and a second histogram being representative of the traffic being passed from the network.

4. The method of claim 1, wherein the histogram file is representative of traffic passing to a host connected to the entry or exit point.

20 5. The method of claim 1, further comprising repeating steps (b) - (d) for at least a predetermined period.

6. The method of claim 1, further comprising analyzing the traffic log to determine state information of a packet associated with the traffic log, and updating the histogram with the state information.

5 7. The method of claim 1, wherein the histogram plots packets per minute versus time.

8. The method of claim 1, further comprising broadcasting from a server computer data representative of the histogram to a client computer.

9. The method of claim 1, wherein the network is a Mobitex network.

10. The method of claim 1, further comprising displaying a histogram based on data in the histogram file.

11. The method of claim 1, further comprising creating at least one histogram for each host of the network.

12. The method of claim 11, further comprising selecting for display the at least one histogram for a particular host.

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13. The method of claim 1, further comprising monitoring a central location of the network for new traffic logs.

14. A method of monitoring packet traffic through a node of a packet-switched network using traffic logs, comprising the steps of:

- (a) creating a histogram file for at least one node in the network;
- (b) storing a traffic log generated by the network;
- 5 (c) determining the time of creation of the traffic log and its network entry and exit points;
- (d) determining a network path between the entry and exit points;
- (e) determining whether the node falls along the network path; and
- (f) updating the histogram file using at least the time of creation of the traffic log.

15. The method of claim 14, wherein the histogram file is a flat file.

16. The method of claim 14, wherein two histogram files are created, a first histogram being representative of traffic being passed towards a higher level of the network and a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

20 17. The method of claim 14, further comprising repeating steps (b) - (f) for at least a 24 hour period.

25 18. The method of claim 14, wherein the histogram plots packets per minute versus time.

19. The method of claim 14, further comprising broadcasting, from a server computer, data representative of the histogram to a client computer.

20. The method of claim 14, wherein the network is a Mobitex network.

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21. The method of claim 14, further comprising displaying a histogram based on data in the histogram file.

22. The method of claim 14, further comprising creating at least one histogram for each node of the network.

23. The method of claim 14, further comprising selecting for display the at least one histogram for a particular node.

24. The method of claim 14, further comprising monitoring a central location of the network for new traffic logs.

25. A method of monitoring packet traffic passing through a link connecting two nodes of a packet-switched network using traffic logs, comprising the steps of:

- 20 (a) creating a histogram file for at least one link in the network;
(b) storing a traffic log generated by the network;
(c) analyzing the traffic log to determine the time of creation of the traffic log and its network entry and exit points;

- (d) determining a network path between the entry and exit points;
- (e) determining whether the link falls along the network path;
- (f) determining a number of bytes carried by the packet associated with the traffic log;

and

- 5 (g) updating the histogram file using at least the time of creation of the traffic log and the number of bytes.

26. The method of claim 25, wherein the histogram file is a flat file.

10 27. The method of claim 25, wherein two histogram files are created, a first histogram being representative of traffic being passed towards a higher level of the network and a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

15 28. The method of claim 25, further comprising repeating steps (b) - (g) for at least a 24 hour period.

29. The method of claim 25, wherein the histogram plots bytes per second versus time.

20 30. The method of claim 25 further comprising broadcasting from a server computer to a client computer data representative of the histogram.

31. The method of claim 25, wherein the network is a Mobitex network.

32. The method of claim 25, further comprising displaying a histogram based on data in the histogram file.

5 33. The method of claim 25, further comprising creating at least one histogram for each link of the network.

34. The method of claim 25, further comprising selecting for display the at least one histogram for a particular link.

10 35. The method of claim 25, further comprising monitoring a central location of the network for new traffic logs.

15 36. A method of monitoring the operations of a packet-switched network, the network automatically generating traffic logs when a packet enters or exits the network, the method comprising the steps of:

- (a) detecting when new traffic logs are available at a network control center;
- (b) downloading the new traffic logs to a server computer;
- (c) updating at least one histogram file using information available from the new traffic logs;
- (d) deleting the new traffic logs; and
- (e) making the at least one histogram file available to a client computer.

37. The method of claim 36, wherein the histogram file is a flat file.

38. The method of claim 36, wherein the histogram is representative of traffic passing through or via at least one of a host connected to the network, a node in the network and a link connecting two nodes of the network.

5 39. The method of claim 36, wherein the network is a Mobitex network.

10 40. The method of claim 36, wherein the histogram includes information representative of a state of each of the packets associated, respectively, with each of the traffic logs.

15 41. The method of claim 36, further comprising broadcasting the histogram file to a plurality of client computers.

42. The method of claim 36, wherein step (c) comprises incrementing a value in the histogram file.

20 43. A method of analyzing the performance of a packet-switched network, the network automatically generating a traffic log each time a packet exits the network, each traffic log including at least the time the traffic log was created, the addresses of the packet sender and packet recipient, and the entry and exit network nodes, the method comprising the steps of:

(a) collecting a plurality of traffic logs; and

(b) automatically generating a plurality of histograms, each histogram being based on information gleaned from the plurality of traffic logs,
wherein at least one histogram is representative of packet traffic passing through a host connected to the network.

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44. The method of claim 43, wherein at least one histogram is representative of packet traffic passing through a node of the network.

45. The method of claim 43, wherein at least one histogram is representative of data traffic travelling over a link in the network.

46. The method of claim 43, wherein the histograms are stored as flat files.

47. The method of claim 43, wherein steps (a) and (b) are carried out on a server computer and at least one histogram is supplied to a client computer.

48. The method of claim 43, further comprising displaying at least one histogram on a computer display.

20 49. A system for monitoring a packet-switched network that automatically generates traffic logs, comprising:

(a) a network control center at which the traffic logs are collected; and

(b) a computer operable to (i) create a histogram file, (ii) store a traffic log generated by the network, (iii) determine the time of creation of the traffic log and its network entry and exit points, and (iv) update the histogram file using at least the time of creation of the traffic log and at least one of the entry and exit points.

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50. The system of claim 49, wherein the histogram file is a flat file.

51. The system of claim 49, wherein the computer creates two histogram files, a first histogram being representative of traffic being passed into the network and a second histogram being representative of the traffic being passed from the network.

52. The system of claim 49, wherein the histogram file is representative of traffic passing through a host connected to the entry or exit point.

53. The system of claim 49, wherein the computer analyzes the traffic log to determine state information of a packet associated with the traffic log, and updates the histogram with the state information.

54. The system of claim 49, wherein the histogram is a plot of packets per minute versus time.

55. The system of claim 49, wherein the computer is a server computer and the server computer broadcasts data representative of the histogram to a client computer.

56. The system of claim 49, wherein the network is a Mobitex network.

57. The system of claim 49, wherein a client computer displays a histogram based on

5 data in the histogram file.

58. The system of claim 49, wherein the computer creates at least one histogram for each

host of the network.

59. The system of claim 49, wherein the computer monitors the network control center

for new traffic logs.

60. A system for monitoring packet traffic through a node of a packet-switched network

that automatically generates traffic logs, comprising:

(a) a server connected to a network control center; and

(b) a client connected to the server,

wherein the server is operable to (i) create a histogram file for at least one node in the
network, (ii) store a traffic log generated by the network, (iii) analyze the traffic log to determine
the time of creation of the traffic log and its network entry and exit points, (iv) determine a
20 network path between the entry and exit points, (v) determine whether the node falls along the
network path, and (vi) update the histogram file using at least the time of creation of the traffic
log.

61. The system of claim 60, wherein the histogram file is a flat file.

62. The system of claim 60, wherein the server creates two histogram files, a first histogram being representative of traffic being passed towards a higher level of the network and
5 a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

63. The system of claim 60, wherein the histogram is a plot of packets per minute versus time.

64. The system of claim 60, wherein the server broadcasts to the client data representative of the histogram.

65. The system of claim 60, wherein the network is a Mobitex network.

66. The system of claim 60, wherein the client displays a histogram based on data in the histogram file.

67. The system of claim 60, wherein the server creates at least one histogram for each
20 node of the network.

68. The system of claim 60, wherein the client is operable to select for display at least one histogram for a particular node.

69. A system for monitoring packet traffic passing through a link connecting two nodes of a packet-switched network that automatically generates traffic logs, comprising:

- (a) a server; and
- 5 (b) a client connected to the server,

wherein the server is programmed to (i) create a histogram file for at least one link in the network, (ii) store a traffic log generated by the network, (iii) determine the time of creation of the traffic log and its network entry and exit points, (iv) determine a network path between the entry and exit points, (v) determine whether the link falls along the network path, (vi) determine the number of bytes carried by the packet associated with the traffic log, and (vii) update the histogram file using at least the time of creation of the traffic log and the number of bytes.

10 70. The system of claim 69, wherein the histogram file is a flat file.

15 71. The system of claim 69, wherein the server creates two histogram files, a first histogram being representative of traffic being passed towards a higher level of the network and a second histogram being representative of the traffic being passed towards a lower level of the network or outside the network.

20 72. The system of claim 69, wherein the histogram is a plot of bytes per second versus time.

73. The system of claim 69, wherein the server broadcasts to the client data representative of the histogram.

74. The system of claim 69, wherein the network is a Mobitex network.

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75. The system of claim 69, wherein the client displays a histogram based on data in the histogram file.

76. The system of claim 69, wherein the server creates at least one histogram for each link of the network.

77. The system of claim 69, wherein the client is operable to select for display the at least one histogram for a particular link.

78. A system for monitoring the operations of a packet-switched network, the network automatically generating traffic logs when a packet enters or exits the network, the system comprising:

a server, in communication with a network control center, for detecting when new traffic logs are available at the network control center, for downloading the new traffic logs, for updating at least one histogram file using information available from the new traffic logs; and a client computer for displaying the histogram.

79. The system of claim 78, wherein the histogram file is a flat file.

80. The system of claim 78, wherein the histogram is representative of traffic passing through or via at least one of a host connected to the network, a node in the network and a link connecting two nodes of the network.

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81. The system of claim 78, wherein the network is a Mobitex network.

82. The system of claim 78, wherein the histogram includes information representative of a state of each of the packets associated, respectively, with each of the traffic logs.

83. The system of claim 78, wherein the server broadcasts the histogram file to a plurality of client computers.

84. A system for analyzing the performance of a packet-switched network, the network automatically generating a traffic log each time a packet enters or exits the network, each traffic log including at least the time the traffic log was created, the addresses of the packet sender and packet recipient, and the entry and exit network nodes, the system comprising:

(a) a traffic log data base; and

(b) a computer, the computer operable to download traffic logs from the traffic log

20 database and to generate and store a plurality of histograms, each histogram being generated from information gleaned from the plurality of traffic logs,

wherein at least one histogram is representative of packet traffic passing through or over at least one of a host connected to the network, a node of the network, and a link in the network.

85. The system of claim 84, wherein the histograms are stored as flat files.

86. The system of claim 84, wherein the computer is a server computer.

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87. The system of claim 84, wherein the at least one histogram is supplied to a client computer.

CONTINUATION - DATED 10/22/00